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EXAMINER	
RAJAN, KAI	
ART UNIT	PAPER NUMBER
3769	
MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	**Application No.** 10/681,137	**Applicant(s)** KONG ET AL.	
	Examiner Kai Rajan	**Art Unit** 3769	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 April 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14,17-25,27-34 and 36-44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14,17-25,27-34 and 36-44* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Examiner acknowledges the amendment filed April 20, 2009.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, the specification and claims provide no clarification to the Examiner whether "a health care module," emotional state analysis unit," subtracter unit," "support vector machine unit," "and physical condition analysis unit" comprise structure, or are merely software. Without more, the Examiner is unable to determine the necessary recited *structure* within the apparatus claims to formulate a proper search, since software by itself comprises no structure.

Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, the specification and claims provide no clarification to the Examiner whether "heartbeat analysis unit," “skin conductive response analysis unit," and "skin temperature analysis unit" comprise structure, or are merely software. Without more, the Examiner is unable to determine the necessary recited *structure* within the apparatus claims to formulate a proper search, since software by itself comprises no structure.

Claim 18 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, the specification and claims provide no clarification to the Examiner whether "heartbeat detection unit," “spectrum analysis unit,” and mean/standard deviation calculation unit” comprise structure, or are merely software. Without more, the Examiner is unable to determine the necessary recited *structure* within the apparatus claims to formulate a proper search, since software by itself comprises no structure.

Claim 19 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, the specification and claims provide no clarification to the Examiner whether “band pass filter,” "median filter," “adder,” “matched filter,” and “zero clipper” comprise structure, or are merely software. Without more, the Examiner is unable to determine the necessary recited *structure* within the apparatus claims to formulate a proper search, since software by itself comprises no structure.

Claim 20 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, the specification and claims provide no clarification to the Examiner whether "the subtracter unit" comprises structure, or are merely software. Without more, the Examiner is unable to determine the necessary recited *structure* within the apparatus claims to formulate a proper search, since software by itself comprises no structure.

Claim 21 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, the specification and claims provide no clarification to the Examiner whether "SVM classifier" and "emotional state determination unit" comprise structure, or are merely software. Without more, the Examiner is unable to determine the necessary recited *structure* within the apparatus claims to formulate a proper search, since software by itself comprises no structure.

Claim 22 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, the specification and claims provide no clarification to the Examiner whether "a body fat percentage calculation unit" and "a calorie consumption calculation unit" comprise structure, or are merely software. Without more, the Examiner is unable to determine the necessary recited *structure* within the apparatus claims to formulate a proper search, since software by itself comprises no structure.

Although the Applicant has responded to the aforementioned 35 U.S.C. 112, second paragraph rejections, the claims in question do not positively recite a control unit or processor performing the functions of the "units." As such, the aforementioned units by themselves do not impart additional limiting *structure* on the apparatus claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1 – 11, 13, 14, 17 – 25, 27– 34 and 37 – 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Teller et al. U.S. Patent No. 7,261,690 in view of Tato et al. U.S. PGPub No. 2003/0069728.

Note to Applicant: See previous action for rejection to unaddressed dependent claims, as they are rejected on substantially the same basis.

1. A mobile device with an input unit, a display unit, a memory unit and a central control unit, the mobile device comprising:

a biomedical signal measurement module that detects biomedical signals from a user's body, and classifies the detected biomedical signals by respective signals and outputting the classified signals, (Teller et al. column 9 line 52 – column 10 line 37); and

a health care module that analyzes an emotional state and physical condition of the user based on the classified signals input from the biomedical signal measurement module and physical information of the user, the health care module comprising (Teller et al. figure 1 item 30, table 2):

an emotional state analysis unit, including a feature analysis unit that extracts feature values of the classified biomedical signals input from the biomedical signal measurement module (Teller et al. column 19 lines 45 – 55, figure 8 various levels of stress and relaxation, table 2),

a subtracter unit that obtains differences between the extracted feature values from the feature analysis unit and predetermined feature values (Teller et al. column 19 lines 45 – 55, figure 8 various levels of stress and relaxation, table 2), and a physical condition analysis unit that analyzes the user's physical condition based on the classified biomedical signals input from the biomedical signal measurement module and the user's physical information (Teller et al. column 18 line 57 – column 19 line 30).

Teller et al. discloses collecting physiological and subjective data from a user, and classifying the user's well being and emotional state (Teller et al. column 19 lines 45 – 55, figure 8 various levels of stress and relaxation, table 2), yet fails to disclose a support vector machine for classifying emotion state. However, Tato et al. a reference in an analogous art of collecting data and classifying emotional states discloses using support vector machines for classifying (Tato et al. paragraph 0052). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the emotional state classification of Teller et al. to use support vector machines as in Tato et al., since Tato et al. discloses support vector machines among other classification methods that are known in the art and are suitable for classifying feature vectors.

24. A health care method using a mobile device, comprising the steps of:

detecting biomedical signals from a user's body (Column 9 line 52 – column 10 line 37);

classifying the detected biomedical signals by respective signals (Teller et al. column 9 line 52 – column 10 line 37, table 1);

analyzing an emotional state of the user by extracting a plurality of feature values from the classified biomedical signals, calculating differences between the extracted feature values and predetermined feature values, and classifying the user's emotional state by respective emotions in accordance with the calculated differences of the feature values (Teller et al. column 19 lines 45 – 55, figure 8 various levels of stress and relaxation, table 2); and analyzing a physical condition of the user based on the classified signals and user's physical information (Teller et al. column 18 line 57 – column 19 line 30).

Teller et al. discloses collecting physiological and subjective data from a user, and classifying the user's well being and emotional state (Teller et al. column 19 lines 45 – 55, figure 8 various levels of stress and relaxation, table 2), yet fails to disclose a support vector machine for classifying emotion state. However, Tato et al. a reference in an analogous art of collecting data and classifying emotional states discloses using support vector machines for classifying (Tato et al. paragraph 0052). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the emotional state classification of Teller et al. to use support vector machines as in Tato et al., since Tato et al. discloses support vector machines among other classification methods that are known in the art and are suitable for classifying feature vectors.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 12 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Teller et al. U.S. Patent No. 7,261,690 in view of Tato et al. U.S. PGPub No. 2003/0069728, further in view of Khair et al. U.S. PGPub No. 2002/0109621.

Regarding claims 12 and 36, Teller et al. and Tato et al. disclose collecting physiological data from a user from skin electrodes, but fail to disclose correcting user-to-user variation based on the measured physiological signals. However, Khair et al. a reference in an analogous art discloses adjusting amplifier gain automatically to compensate for varying skin resistance and to keep measured signals within predetermined ranges (Khair et al. paragraphs 0098 – 0099). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Teller et al. and Tato et al. with the adjustable amplifier gain system of Khair et al., since Khair et al. states that varying amplifier gain can compensate for weak physiological signals and bad surface connections, and obtain the sensitivity required for specific applications (Khair et al. paragraph 0099).

Response to Arguments

Applicant's arguments filed April 20, 2009 have been fully considered but they are not persuasive. Applicant contends that Tato fails to disclose "comparing and obtaining differences between extracted and predetermined feature values." The Examiner respectfully disagrees.

Tato teaches the use of classifiers and more specifically support vector machines for determining emotion. The support vector machine (svm) is based on an algorithm that utilizes training (predetermined) data to evaluate subsequently collected datasets. The svm analyzes the datasets and determines the maximum margin between groups of data points, which are then labeled and classified (http://en.wikipedia.org/wiki/Support_Vector_Machine). Since the support vector machine functions to determine differences between training (predetermined) data and collected datasets, it comprises the function of the claimed "subtracter unit." Therefore, since Tato discloses a support vector machime, and the "subtracter unit” is an integral part of the support vector machine, Tato discloses a “subtracter unit.”

The Applicant further contends that the Office has not provided sufficient reasoning to combine the Tato and Teller references, and specifically addresses the types of signals measured in each invention. The Examiner respectfully disagrees with the Applicant’s position.

The Examiner agrees that the Teller and Tato inventions collect different types of data from a patient. However, the Examiner's reliance on the Tato reference is to illustrate the teaching that it was known to one of ordinary skill in the art at the time the invention was made to employ classifiers including support vector machines to classify emotions from collected data (Tato paragraph 0026, 0052), since Teller is silent regarding a suitable classifier to produce the results disclosed in Teller et al. column 19 lines 45 – 55 and figure 8. The types of data collected do not have to be identical between the two inventions, since support vector machines classify datasets depending on the extracted features they are trained to use for any dataset. Furthermore, there is no disclosure in Tato teaching away from using the measured signals in Teller to classify emotions. Therefore, the applied prior art is sufficient to reject the claims as currently presented.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kai Rajan whose telephone number is (571)272-3077. The examiner can normally be reached on Monday - Friday 9:00AM to 4:00PM.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kai Rajan/
Examiner, Art Unit 3736

/Michael C. Astorino/
Primary Examiner, Art Unit 3769

August 28, 2009